

AMENDMENTS

In the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

1. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a first supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

bonding a second supporting substrate to a back surface of the semiconductor wafer;

forming a groove to expose a portion of the first wiring by cutting the second supporting substrate, the semiconductor wafer and the first supporting substrate from a surface of the second supporting substrate, the groove reaching inside the first supporting substrate;

forming a second wiring connected to the exposed portion of the first wiring and extending over the surface of the second supporting substrate;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring by spray coating; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

2. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a first supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

bonding a second supporting substrate to a back surface of the semiconductor wafer;

forming a cushioning portion on the second supporting substrate by spray coating;

forming a groove to expose a portion of the first wiring by cutting the second supporting substrate, the semiconductor wafer and the first supporting substrate from a surface of the second supporting substrate, the groove reaching inside the first supporting substrate;

forming a second wiring connected to the exposed portion of the first wiring and extending over the surface of the second supporting substrate and the cushioning portion;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

3. (Original) The manufacturing method of a semiconductor device of claim 1 or 2, further comprising forming a photoresist layer on the protection film by spray coating.

4. (Original) The manufacturing method of a semiconductor device of claim 1 or 2, further comprising forming a conductive terminal on the second wiring exposed through the opening in the protection film.

5. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

forming a groove to expose a portion of the first wiring by etching the semiconductor wafer from a back surface of the semiconductor wafer;

forming a second wiring connected to the exposed portion of the first wiring and extending over the back surface of the semiconductor wafer;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring by spray coating; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

6. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

forming a groove to expose a portion of the first wiring by etching the semiconductor wafer from a back surface of the semiconductor wafer;

forming a cushioning portion on the back surface of the semiconductor wafer by spray coating;

forming a second wiring connected to the exposed portion of the first wiring and extending over the back surface of the semiconductor wafer and the cushioning portion;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

7. (Original) The manufacturing method of a semiconductor device of claim 5 or 6, further comprising forming a photoresist layer on the protection film by spray coating.

8. (Original) The manufacturing method of a semiconductor device of claim 5 or 6, further comprising forming a conductive terminal on the second wiring exposed through the opening in the protection film.

9. (Currently Amended) The manufacturing method of a semiconductor device of claim 1, 2, 5 or 6, wherein the ~~organic resin is thermosetting~~ protection film comprises an organic resin.

10. (Currently Amended) The manufacturing method of a semiconductor device of claim 1, 2, 5 or 6 9, wherein the organic resin comprises an epoxy resin or is made of a photoresist material.

11. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a first supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

dividing the semiconductor wafer into a plurality of semiconductor dice by etching the semiconductor wafer along a dicing line from a back surface of the semiconductor wafer;

bonding a second supporting substrate to back surfaces of the plurality of semiconductor dice through a resin layer;

forming a groove to expose a portion of the first wiring by cutting the second supporting substrate, the resin layer and the first supporting substrate along the dicing line from a surface of the second supporting substrate, the groove reaching inside the first supporting substrate;

forming a second wiring connected to the exposed portion of the first wiring and extending over the surface of the second supporting substrate;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring by spray coating; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

12. (Currently Amended) A manufacturing method of a semiconductor device, comprising:

bonding a first supporting substrate to a top surface of a semiconductor wafer, a first wiring being formed on the top surface;

dividing the semiconductor wafer into a plurality of semiconductor dice by etching the semiconductor wafer along a dicing line from a back surface of the semiconductor wafer;

bonding a second supporting substrate to back surfaces of the plurality of semiconductor dice through a resin layer;

forming a cushioning portion on the second supporting substrate by spray coating;

forming a groove to expose a portion of the first wiring by cutting the second supporting substrate, the resin layer and the first supporting substrate along the dicing line from a surface of the second supporting substrate, the groove reaching inside the first supporting substrate;

forming a second wiring connected to the exposed portion of the first wiring and extending over the surface of the second supporting substrate and the cushioning portion;

forming a protection film ~~comprising an organic resin~~ on a surface of the second wiring; and

forming an opening in the protection film at a predetermined position to expose the second wiring.

13. (Original) The manufacturing method of a semiconductor device of claim 11 or 12, further comprising forming a photoresist layer on the protection film by spray coating.

14. (Original) The manufacturing method of a semiconductor device of claim 11 or 12, further comprising forming a conductive terminal on the second wiring exposed through the opening of the protection film.

15. (Original) The manufacturing method of a semiconductor device of claim 1, 2, 5, 6, 11 or 12, further comprising forming a photoresist layer by spray coating.

16-18. (Cancelled)

19. (New) A manufacturing method of a semiconductor device, comprising:
providing a semiconductor wafer;
forming a dent in the semiconductor wafer;
spray coating a liquid photoresist over the dent to form a photoresist layer of substantially a uniform thickness; and
hardening the photoresist layer.

20. (New) The manufacturing method of a semiconductor device of claim 9, wherein the organic resin comprises a thermosetting resin.

21. (New) The manufacturing method of a semiconductor device of claim 11 or 12, wherein the protection film comprises an organic resin.

22. (New) The manufacturing method of a semiconductor device of claim 21, wherein the organic resin comprises an epoxy resin or is made of a photoresist material.

23. (New) The manufacturing method of a semiconductor device of claim 21, wherein the organic resin comprises a thermosetting resin.